PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-225660

(43)Date of publication of application : 22.08.1995

(51)Int.Cl. G06F 3/12
B41J 5/30
G06F 17/21
// G06F 15/16

(21)Application number : 06-039323

(22)Date of filing : 15.02.1994

(71)Applicant : FUJI XEROX CO LTD

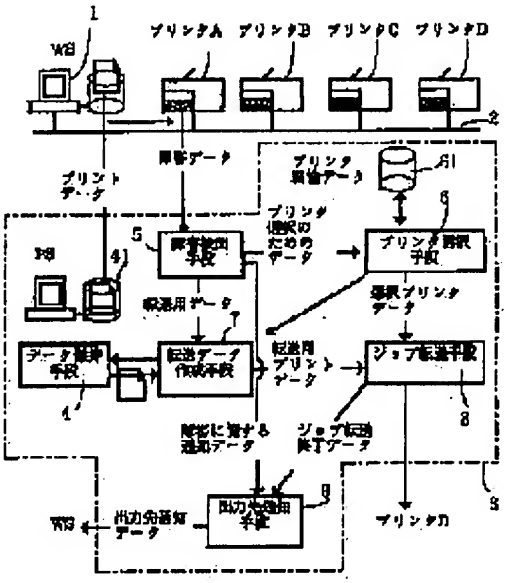
(72)Inventor : TAKESHITA YOSHIHIRO

(54) PRINTER MANAGEMENT DEVICE

(57)Abstract:

PURPOSE: To continue printing by performing a countermeasure processing to a fault generated in a printer and to facilitate the recovery of the printer provided with the fault and the recovery of a printed document in a network system for which the plural printers are connected to a client device through a network.

CONSTITUTION: This device is provided with a data holding means 4 for holding the copy of printing data transmitted from the client device 1 to the printers A-D, a printer selection means 6 for selecting an alternate printer from the other usable printers based on fault information from the printer during a printing processing, transfer processing means 7 and 8 for transferring at least an unprocessed part in the printing data held in the data holding means 4 to the selected alternate printer based on the fault information and an informing means 9 for informing the client device 1 that a processing by the transfer processing means is performed and the countermeasure processing to the fault and informing the client device 1 are performed.



LEGAL STATUS

[Date of request for examination] 15.11.1999

[Date of sending the examiner's decision of rejection]	30.04.2002
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]	
[Date of final disposal for application]	
[Patent number]	
[Date of registration]	
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

* NOTICES *

JPO and INPIT are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the printer management equipment which performs good after treatment to the failure generated during printing processing of a printer in the print system which connected client equipment and two or more printers in the network.
[0002]
[Description of the Prior Art] If failures, such as a paper jam (paper jam) and a form piece, occur to the printer under printing processing, printing is interrupted and an operator has to do the activity which removes the failure each time. For example, when it seemed that he wanted to print a document as early as possible, there were many very inconvenient things and a certain cure was desired. Then, some equipments which perform good after treatment automatically conventionally to the failure of the printer generated during printing processing are proposed. When a failure occurs to the printer which is performing printing processing in the system (it connected locally) which connected two or more printers to the print control unit directly, the print control unit which changes processing to other printers is indicated by JP,1-205320,A. . Moreover, when a failure occurs to the printer which is performing printing processing in the system which connected two or more printers to the print control unit locally, after printing to a page break, the print control unit which changes processing to other printers is indicated by JP,2-16627,A.
[0003]
[Problem(s) to be Solved by the Invention] For recovering the printer, the client equipment which is printing processing request-origin in two or more network systems which made printer connection to each printer will distribute comparatively through a network at a long distance not to the system which connected the printer locally as mentioned above but to the client equipment which requests printing processing, it will be arranged in many cases, it will investigate to which printer the failure occurred, and a very complicated activity will be forced upon an operator. However, although the printer of the local connection by SENTORO or RC232C is indicated by the above-mentioned conventional technique, there is also no place suggested in any way about good after treatment when a failure occurs to the printer of network connection.
[0004] Moreover, when failures, such as a paper jam and a toner piece, occur to a printer during printing processing, in being general, the page in a failure generating time is in the imperfect printing condition. For this reason, if the good after treatment to the failure of a printer does not make the page in a failure generating time print again, it cannot print a document perfect as a whole. however, since it does not have a means to hold the print data made into the object of printing processing with the above-mentioned conventional technique, when the failure of a paper jam etc. occurs Or printing of a subsequent page was continued and it was not able to obtain a perfect document, without performing printing which is the page which the failure generated, printing was again started from the page of the beginning of a document, and the useless page was what will be overlapped and printed.
[0005] Moreover, in the network system with which each printer distributes to a long distance

comparatively, and is arranged from client equipment in many cases, if the printer which is carrying out printing processing was merely only changed automatically, the situation where an operator had to turn around each printer and had to look for the document by which the printout was carried out etc. arose, and an operator's user-friendliness needs to be improved.

[0006] This invention indicated by claim 1 and claim 2 was made in view of the above-mentioned conventional situation, is the network system in which plurality made printer connection through the network at client equipment, and aims at offering the printer management equipment which realizes good after treatment to a failure. Moreover, this invention indicated by claim 1 and claim 2 is the above-mentioned network system, and aims at offering the printer management equipment which easy-izes recovery of a printer with obstacles and printed recovery of a document by the good after treatment to a failure. Moreover, this invention indicated by claim 1 and claim 2 is the above-mentioned network system, and aims at offering the printer management equipment which realizes printing of a document perfect as a whole by the good after treatment to a failure. Moreover, this invention which was indicated by claim 2 in addition to the above is the above-mentioned network system, and aims at offering the printer management equipment which realizes continuation of printing in alignment with an operator's hope by the good after treatment to a failure.

[0007]

[Means for Solving the Problem] The printer management equipment (3) of this invention indicated to claim 1 In the printer management equipment (3) which manages two or more printers (A-D) connected to the client equipment (1) which becomes printing processing request-origin through the network (2) A data-hold means to hold the counterpart of the print data sent to a printer (A-D) from client equipment (1) (4), A printer selection means to choose an alternative printer from from among other usable printers (B-D) based on the fault information from a printer (A) (6), A transfer processing means to transmit to said alternative printer which had the unsettled part of the print data chosen at least based on the counterpart of the print data held at said fault information and a data-hold means (4) (7 8), It is characterized by having a notice means (9) to notify that processing by said transfer processing means was made to said client equipment (1).

[0008] The printer management equipment (13) of this invention indicated to claim 2 In the printer management equipment (13) which manages two or more printers (A-D) connected to the client equipment (1) which becomes printing processing request-origin through the network (2) A data-hold means to hold the counterpart of the print data sent to a printer (A-D) from client equipment (1) (14), A printer extract means to extract the candidate of an alternative printer from from among other usable printers (B-D) based on the fault information from a printer (A) (16), While notifying the candidate of the alternative printer which said printer extract means extracted to said client equipment (1) The control means which receives the directions from the client equipment (1) concerned (19), The alternative printer used out of the candidate of said alternative printer based on the directions from said client equipment (1) is chosen. It is characterized by having a transfer processing means (17 18) to transmit to the alternative printer concerned which had the unsettled part of the print data chosen at least based on the counterpart of the print data held at said fault information and a data-hold means (14).

[0009] The counterpart of the print data held for a data-hold means (4 14) here may be only a counterpart [not only] of the whole print data, but a management data part which identifies the print data concerned. That is, a data-hold means (4 14) holds only the management data containing the storing location data of the data ID (data name) of the print data transmitted to the printer (A-D) from client equipment (1), and the print data concerned, and may store the whole print data also containing a part for a print command and document data division in the storage means of client equipment (1), or the storage means of a printer (A-D). In this case, if the accessing function is given to the data-hold means (4 14), a data-hold means (4 14) will take out the print data which the failure produced from a storing location based on management data, and a transfer processing means (7, 8, 17, 18) will be passed. moreover, a data-hold means (4 14) -- not but, if the accessing function is given to the transfer processing means (7, 8, 17, 18), a transfer processing means (7, 8, 17, 18) will take out the print data which the failure produced from a storing location with reference to the management data held at the

data-hold means (4 14). Moreover, both the good after treatment from the beginning and the good after treatment from after failure generating can perform good after treatment. The good after treatment from the beginning is processing which performs the printout from the first page by the alternative printer anyhow, and the good after treatment from after failure generating is processing which performs the printout from N+1 page by the alternative printer, when a printout is completed to N page.
[0010]
[Function] When failures, such as a paper jam, a slip of paper, and a toner piece, occur to the printer under printing processing and continuation of printing processing becomes impossible to it, according to the printer management equipment indicated to claim 1 A printer selection means chooses other printers connected to the network as an alternative printer, the part of the print data currently held at the data-hold means in which printing processing is not made at least is transmitted to this alternative printer, and printing of a document is continued. And that the transfer to this alternative printer was made can make an operator able to find out the target printer easily and quickly, and it can make a required activity do on the occasion of the activity which recovers the printer which the activity which is notified to the client equipment which is printing processing request-origin, and collects the printed documents, and the failure produced with a notice means.
[0011] Moreover, when the above failures occur to the printer under printing processing and continuation of printing processing becomes impossible to it, according to the printer management equipment indicated to claim 2 While the candidate to whom a printer selection means serves as an alternative printer from from among other printers connected to the network is extracted and a control means notifies the candidate of these alternatives printer to client equipment Receive the directions which specify the alternative printer which should be used from client equipment, and transfer equipment chooses an alternative printer from from among candidates based on this. The part of the print data currently held at the data-hold means in which printing processing is not made at least is transmitted to this alternative printer, and printing of a document is continued. This print data transfer can provide an operator with a convenient situation on the occasion of the activity which recovers the printer which the activity which is made and collects the printed documents, and the failure produced to the alternative printer chosen according to the hope of the operator who is operating client equipment.
[0012] Here, when the counterpart of the print data currently held at the data-hold means is the whole print data containing the print command and the document data other than management data, a transfer processing means acquires print data from this data-hold means directly, changes this print data based on failure data, and transmits it to an alternative printer also in the printer management equipment indicated to any of claim 1 or claim 2. On the other hand, when the counterpart of the print data currently held at the data-hold means is only a management data part, a data-hold means or a transfer processing means acquires the whole print data which contains a part for a print command and document data division from storing locations, such as a storage means of client equipment, based on this management data. And a transfer processing means transmits this print data to an alternative printer like the above.
[0013]
[Example] One example of the printer control unit indicated to claim 1 is explained with reference to a drawing. As shown in drawing 1 , four sets of printer A-D are connected to the workstation 1 as client equipment through the network 2, and the printer management equipment 3 for managing these printer A-D is connected to this network 2. In addition, printer management equipment 3 may be constituted in the print server and one which control a workstation 1, printer A-D, or printer A-D, although it connects with the network 2 as an isolated system in this example.
[0014] Printer management equipment 3 The counterpart of print data The print data for a transfer transmitted to the data-hold means 4 for holding, a failure detection means 5 to receive failure data from the printer which the failure generated, a printer selection means 6 to choose the alternative printer which replaces the printer which the failure generated, and an alternative printer It has a notice means 9 of an output destination change to perform generating of a transfer data origination means 7 to create, a job transfer means 8 to transmit the print data for a transfer to an alternative printer, and a failure, and the notice about the print data transfer point to a workstation 1.

[0015] When a workstation 1 requests printing processing of print data from either of printer A-D, while print data are transmitted to a printer through a network 2 from a workstation 1, the print data (namely, counterpart of said print data) of the same contents are transmitted also to the data-hold means 4. This print data contains the size (paperSize), the first page to be printed (beginningPage), the print to page (endingPage), and document data (documentdata) of a form as a print data name, the printer name (address) used as the destination of print data, the workstation name (address) of the transmitting origin of print data, the maintenance place of the counterpart of print data, and a print command (printcommand). For example, the print data 1 which make the form of B4 size print the document data doc1 from 1 page to 25 pages are transmitted to Printer A from a workstation 1, and further, in transmitting also to printer management equipment 3, print data serve as a configuration as shown in Table 1. In addition, all over Table 1, WS and printer management equipment 3 are written for the workstation 1 as PS.

[0016]

[Table 1]

プリントデータ
- データ名:プリントデータ1
- 宛先:プリンタA
- 送信元:WS
- プリントデータ保持先:PS
- printcommond:
  - paperSize:B4
  - beginningPage:1
  - endingPage:25
- ducument data:doc1

[0017] The data-hold means 4 has the hard disk 41 in which writing and read-out are free, and as shown in drawing 2 , it stores the print data transmitted from the workstation 1 in a hard disk 41. For example, when it stores the print data 1-4 in a hard disk 41, as shown in drawing 3 , the destination of each print data 1-4 and the address of a transmitting agency, a print command, and document data are arranged and stored.

[0018] The failure detection means 5 acquires the print data name under printing processing, its printer name (address), the page number of sheets that carried out the printout by failure generating, the failure code which shows the class of failure, and the failure data containing the identifier (ID) of failure data from the printer which the failure generated. For example, failure data when a paper jam arises after ending 3 pages of printings of the print data 1 by Printer A serve as a configuration as shown in Table 2. In addition, as 1 and a form piece called 2 and a toner piece 3 and unknown ** 4, as for the paper jam, corresponding to the contents of the failure, the failure code is beforehand set to printer management equipment 3, and as for printer management equipment 3, the contents of the failure are specified in this failure code.

[0019]

[Table 2]

障害データ
- データ名:プリントデータ1
- 障害発生プリンタ:プリンタA
- 出力枚数:3
- 障害コード:1
- 障害データID:001

[0020] Moreover, the failure detection means 5 transmits the data for choosing the alternative printer used as instead of being the printer which the failure generated based on failure data to the printer selection means 6. When a failure generates [for example,] the data for this printer selection by Printer A including the printer name which the failure generated, that printer name (address) is transmitted. Moreover, the failure detection means 5 creates the data for a transfer which are needed in order to print the print data in which a printout was not carried out by the failure based on failure data, and transmits them to the transfer data origination means 7. When a failure occurs after carrying out the 3 page printout of the print data 1 which this data for a transfer contains the page number of sheets which

carried out the printout according to the failure by the maintenance place name of the print data which the printout has interrupted, its print data name, and failure generating, for example, have been held to print management equipment 3 (PS), the data for a transfer serve as a configuration as shown in Table 3.

[0021]
[Table 3]
転送用データ
プリントデータ保持先:PS
データ名:プリントデータ1
出力枚数:3

[0022] Moreover, the failure detection means 5 creates the notice data about the failure which becomes the radical of the information notified to a workstation 1, and transmits them to the notice means 9 of an output. When the failure which the notice data about this failure contain the page number of sheets which carried out the printout, the contents of the failure, and the failure data ID according to the failure by the print data name which the printout has interrupted, its printer name (address), and failure generating, for example, was described above by Printer A occurs, the notice data about a failure serve as a configuration as shown in Table 4.
[0023]
[Table 4]
障害に関する通知データ
データ名:プリントデータ1
障害発生プリンタ:プリンタA
出力枚数:3
障害内容:紙ジャム
障害データID:001

[0024] The printer selection means 6 has the memory 61 in which the writing which stores the attribute data of each printer and read-out are free, and the attribute data of all printer A-E used as the administration object of printer management equipment 3 is beforehand stored in this memory 61. As the attribute data of the printer stored in memory 61 is shown in drawing 4 , the paper size (O mark shows what can be used) which can be used, a quality of printed character, an installation location, and operating status are included about each printer A-E, and these data are updated by offer of the data from a printer, or investigation of a printer at any time, and are always reflecting the attribute in this time of each printer A-E by it. In addition, although the publication into drawing 1 was omitted since Printer E was installed in a different location from other printer A-D, although the printer E which is not shown is indicated by drawing 1 in drawing 4 , Printer E is connected to the workstation 1 through the network 2 like printer A-D.
[0025] The printer selection means 6 will transmit the selection printer data in which having chosen the printer which is substituted based on the data stored in memory 61, and having chosen the alternative printer to the printer which the failure produced is shown to the transfer data origination means 7 and the job transfer means 8, if the data for printer selection are inputted from the failure detection means 5. When this selection printer data chooses [for example,] Printer D as an alternative printer including the printer name chosen as an alternative printer, that printer name (address) is transmitted.
[0026] If the data for a transfer are transmitted from the failure detection means 5 and selection printer data are transmitted from the printer selection means 6, the transfer data origination means 7 will create the print data for a transfer based on the counterpart (Table 1) of the print data currently held at this data for a transfer, and the data-hold means 4, and will transmit them to the job transfer means 8. This print data for a transfer contains the size (paperSize), the first page to be printed (beginningPage), the print to page (endingPage), and document data (documentdata) of a form as the print data name which the printout has interrupted according to the failure, the alternative printer name (address) used as that destination, the workstation name (address) of the transmitting origin of print data, the maintenance place name of the counterpart of print data, and a print command (printcommand). For example, in transmitting the print data shown in the above-mentioned table 1 to the printer D chosen as an

alternative printer, the print data for a transfer serve as a configuration as shown in Table 5. In addition, when an alternative printer cannot be chosen with the printer selection means 6, the transfer data origination means 7 detects this by the existence of transmission of selection printer data, and does not create the print data for a transfer.

[0027]

[Table 5]

転送用プリントデータ
データ名:プリントデータ1
転送先:プリンタD
送信元:WS
プリントデータ保持先:PS
printcommond:
paperSize:B4
beginningPage:4
endingPage:25
ducument data:doc1

[0028] If the job transfer means 8 serves as an interface of each printer A-E, and selection printer data are sent from the printer selection means 6 and the printer data for a transfer are sent from the transfer data origination means 7, the print data for a transfer will be transmitted to the printer chosen as an alternative printer. For example, in the case of the above-mentioned example, the print data for a transfer shown in the alternative printer D in Table 5 are transmitted. After ending such a print data transfer, the job transfer means 8 creates the job transfer termination data in which having carried out the job transfer to the alternative printer based on the transmitting agency data of the print data for a transfer, destination data, and first-page-to-be-printed (beginningPage) data is shown, and transmits them to the notice means 9 of an output destination change. In the case of the example which this job transfer termination data contains the destination name of data, the alternative printer name of the destination, the first page to be printed of the transmitted print data, and ID of failure data, for example, was described above, job transfer termination data become with a configuration as shown in Table 6.

[0029]

[Table 6]

ジョブ転送終了データ
宛先:WS
転送先:プリンタD
開始ページ:4
障害データID:001

[0030] If the notice data about a failure are inputted from the failure detection means 5 and job transfer termination data are inputted from the job transfer means 8, the notice means 9 of an output destination change will create the notice data of an output based on these data, and will transmit them to the workstation 1 of print data transmitting origin. In the case of the example which includes the contents of the pagination which ended the printout by the time the printer name and failure which the destination name of data, document data (documentdata), the alternative printer name of the destination, the first page to be printed of the transmitted print data, and a failure produced occurred, and the generated failure, for example, was described above, this notice data of an output becomes with a configuration as shown in Table 7.

[0031]

[Table 7]

出力先通知データ
宛先:WS
ducument data:doc1
転送先:プリンタD
開始ページ:4
障害のプリンタ:プリンタA
プリント枚数:3
障害内容:紙ジャム

[0032] According to the printer management equipment 3 of the above-mentioned configuration, when

[which it shifted and the failure generated during printing processing in that printer A-E] connecting with a network 2, other usable printers can be chosen as an alternative printer as follows, and printing processing can be continued. In addition, in the following explanation, the print data 1 (refer to Table 1) which should print document data (doc1) from a workstation 1 from 1 page to 25 pages in the form of B4 ZAIZU to Printer A are sent, after a printout is completed to the 3rd page under the printing processing, a paper jam is generated to Printer A, and the case where choose Printer D as an alternative printer and subsequent printing processing is continued is taken for an example. First, if a failure occurs by the printer A, the failure data shown in Table 2 are sent from Printer A to the failure-detection means 5, the data for the printer selection which shows Printer A to the printer selection means 6 from the failure-detection means 5 are sent based on this, the data for a transfer shown in Table 3 are sent to a transfer data-origination means 7, and the notice data about the failure shown in Table 4 will be sent to the notice means 9 of an output destination change.

[0033] Based on this data input, the printer D which serves as an alternative of Printer A according to the procedure shown in drawing 5 is chosen with the printer selection means 6 with reference to the attribute data (refer to drawing 4) of each printer stored in memory 61. Namely, the attribute data of Printer A is grasped (step S1), it is [current] under operation, and other usable printer B-E is extracted (step S2). Subsequently, printer C-E which has the form of the same size (B4) as that in which Printer A is carrying out current use is extracted out of this extracted printer B-E (step S3). Furthermore, the printer D which has the same quality of printed character as Printer A is extracted out of this printer C-E (step S4). Furthermore, this printer D examines whether it is installed in the same location as Printer A (step S5), and, finally chooses the most suitable printer D as an alternative of Printer A (step S6). And the printer selection means 6 notifies this alternative selected printer D to the job transfer means 8 and the transfer data origination means 7 with selection printer data. In addition, these selection criteria are set as arbitration according to a use mode etc., and as long as there is need, you may make it add other criteria in this example, although the criteria of alternative printer selection were made into the order of a paper size, a quality of printed character, and an installation location.

[0034] On the other hand, with the transfer data origination means 7, the print data for a transfer are created according to the procedure shown in drawing 6 using the counterpart of the print data currently held at the data-hold means 4 based on the above-mentioned entry of data. That is, the counterpart (refer to Table 1) of the print data currently held at the data-hold means 4 is obtained (step S11), the printer in this data is changed into the alternative printer D from Printer A (step S12), further, the first page to be printed is re(step S13) set up so that it may become the following page [finishing / a printout], and the print data for a transfer shown in Table 5 are created.

[0035] Thus, the created print data for a transfer are transmitted to the job transfer means 8, with the job transfer means 8, it is transmitted to the alternative printer D and the printout of the part (from the 4th page to the 25th page) of printing of only the print data 1 is carried out by Printer D. It notifies that it transmitted the job transfer termination data shown in Table 6 to the notice means 9 of an output destination change, a job transfer means 8 transmitted the notice data of an output destination change which the notice means 9 of an output destination change showed in Table 7 to a client equipment slack workstation 1, transmitted print data to the operator who is operating the workstation 1 at the situation and the printer D of a failure of a printer A, and will continue printing processing on the other hand if this print data transmits. By this, the document perfect as a whole which the good after treatment to a failure is automatically made, and does not have lack or duplication of the printed page can be printed, and an operator can perform recovery of a printer failure and printed recovery of a document easily.

[0036] Next, one example of the printer control unit indicated to claim 2 is explained with reference to a drawing. As shown in drawing 7 , four sets of printer A-D are connected to the workstation 1 as client equipment through the network 2, and the printer management equipment 13 for managing these printer A-D is connected to this network 2. In addition, printer management equipment 13 may be constituted in the print server and one which control a workstation 1, printer A-D, or printer A-D, although it connects with the network 2 as an isolated system in this example.

[0037] Printer management equipment 13 The counterpart of print data The data-hold means 14 for

holding, Failure data from the printer which the failure generated A failure detection means 15 to receive, a printer extract means 16 to extract the candidate who becomes the alternative printer of the printer which the failure generated, a transfer data origination means 17 to create the print data for a transfer transmitted to the alternative printer chosen from candidates, and the print data for a transfer It has a job transfer means 18 to transmit to an alternative printer, and the job recovery control means 19 which delivers and receives information and controls each means 15 thru/or processing by 18 between workstations 1.

[0038] When a workstation 1 requests printing processing of print data from either of printer A-D, while print data are transmitted to a printer through a network 2 from a workstation 1, the print data (namely, counterpart of said print data) of the same contents are transmitted also to the data-hold means 14. This print data contains the size (paperSize), the first page to be printed (beginningPage), the print to page (endingPage), and document data (documentdata) of a form as a print data name, the printer name (address) used as the destination of print data, the workstation name (address) of the transmitting origin of print data, the maintenance place of the counterpart of print data, and a print command (printcommand). For example, the print data 1 which make the form of B4 size print the document data doc1 from 1 page to 25 pages are transmitted to Printer A from a workstation 1, and further, in transmitting also to printer management equipment 13, print data serve as a configuration as shown in Table 1.

[0039] The data-hold means 14 has the hard disk 141 in which writing and read-out are free, and as shown in drawing 2 , it stores the print data transmitted from the workstation 1 in a hard disk 141. The failure detection means 15 acquires the print data name under printing processing, its printer name (address), the page number of sheets that carried out the printout by failure generating, the failure code which shows the class of failure, and the failure data containing the identifier (ID) of failure data from the printer which the failure generated, as shown in Table 2. Moreover, the failure detection means 15 transmits this failure data to the job recovery control means 19.

[0040] The job recovery control means 19 has specified the original workstation 1 based on this failure data since printing. Specification of this workstation 1 once reads the print data applicable to the print data name included in failure data from the data-hold means 14, and is performed by acquiring the address of the workstation 1 indicated at the transmitting origin of print data. And based on failure data, the job recovery control means 19 creates the notice data of failure generating, and transmits them to the workstation which specified this. When a failure occurs after the notice data of this failure generating contain the pagination which a printout ended by the time the workstation name (address) of a notice place, the printer management device name (address) of a notifying agency, the printer name that the failure generated, and a failure occurred, and the failure code which show the contents of the failure, for example, carrying out the 3 page printout of the print data by the printer A, the notice data of failure generating serve as a configuration as shown in Table 8.

[0041]

[Table 8]

障害発生の通知のデータ

通知先:WS
通知元:PS
障害発生プリンタ:プリンタA
出力枚数:3
障害コード:1

[0042] moreover, the job recovery control means 19 receives the reply which is alike and answers the notice of failure generating and is sent from a workstation 1, and determines whether perform good after treatment (job recovery) to the failure of Printer A according to the contents of this reply. This reply serves as a configuration as shown in Table 9, when the necessity of activation of the print management device name (address) of the destination of a reply, the workstation name (address) of the transmitting origin of a reply, and job recovery is included, for example, it requires activation of job recovery.

[0043]

[Table 9]

障害発生の通知データに対する
リプライ
　リプライ先:PS
　リプライ元:WS
　ジョブリカバリ実行:Yes

[0044] Moreover, when activation of job recovery is demanded by the reply from a workstation 1, the job recovery control means 19 creates the data for extracting the candidate of an alternative printer based on failure data, and transmits them to the printer extract means 16. The data for this printer extract contain the printer name which the failure produced, and, in the case of the above-mentioned example, Printer A is notified.
[0045] The printer extract means 16 has the memory 161 in which the writing which stores the attribute data of each printer and read-out are free, and the attribute data of all printer A-E used as the administration object of printer management equipment 13 is beforehand stored in this memory 161. As the attribute data of the printer stored in memory 161 was shown in drawing 4 , the paper size (O mark shows what can be used) which can be used, a quality of printed character, an installation location, and operating status are included about each printer A-E, and these data are updated by offer of the data from a printer, or investigation of a printer at any time, and are always reflecting the attribute in this time of each printer A-E by it. The printer selection means 16 will transmit the extract printer data in which having extracted the candidate of the printer which is substituted based on the data stored in memory 161, and having extracted the alternative printer candidate to the printer which the failure produced is shown to the job recovery control means 19, if the data for a printer extract are inputted from the job recovery control 19. When this extract printer data extracts [for example,] Printer C and Printer D for a candidate including all the printer names extracted as a candidate of an alternative printer, that printer name (address) is transmitted.
[0046] The job recovery control means 19 creates the transfer data of an extract printer in order to tell which printer can use it for a workstation 1 as an alternative candidate based on the received data, and it transmits this to a workstation 1. The transfer data of this extract printer serve as a configuration as shown in Table 10 in the example which includes the candidate name of the pagination which the printout ended by the time the workstation name (address) of a notice place, the printer management device name (address) of a notifying agency, the printer name that the failure generated, and the failure occurred, the failure code which shows the contents of the failure, and the extracted printer, for example, described above.
[0047]
[Table 10]
抽出プリンタの転送データ
　通知先:WS
　通知元:PS
　障害発生プリンタ:プリンタA
　出力枚数:3
　障害コード:1
　抽出プリンタ:
　　プリンタC,プリンタD

[0048] The job recovery control device 19 receives a reply from a workstation 1 as a response to the transfer data of an extract printer, chooses the printer directed by this reply as an alternative printer, and continues job recovery. This reply serves as a configuration as shown in Table 11, when choosing Printer D from from as an alternative printer among the candidates who contain from from the alternative printer name chosen by an operator's volition among the print management device name (address) of the destination of a reply, the workstation name (address) of the transmitting origin of a reply, the necessity of activation of job recovery, and a candidate, for example, were notified. In addition, the directions which do not need activation of job recovery by this reply can also be performed, and when it is judged that there is no suitable printer for the inside of the candidate of an alternative printer notified of the operator, the job recovery after this can also be stopped.
[0049]

[Table 11]
抽出プリンタの転送データ
に対するリプライ
リプライ先:PS
リプライ元:WS
ジョブリカバリ実行:Yes
選択プリンタ:プリンタD

[0050] The job recovery control means 19 will notify this to the transfer data origination means 7 and the job transfer means 18, if directions of the alternative printer chosen from the workstation 1 are received. Moreover, the job recovery control means 19 creates the data for a transfer which are needed in order to print the print data in which a printout was not carried out by the failure based on failure data, and transmits them to the transfer data origination means 17. When a failure occurs after this data for a transfer containing the page number of sheets which carried out the printout according to the failure by the maintenance place name of the print data which the printout has interrupted, its print data name, and failure generating, for example, carrying out the 3-page printout of the print data 1, the data for a transfer serve as a configuration as shown in Table 12.
[0051]
[Table 12]
転送用データ
プリントデータ保持先:PS
データ名:プリントデータ1
出力枚数:3

[0052] If the above-mentioned data are transmitted, the transfer data origination means 17 will create the print data for a transfer based on the counterpart (Table 1) of the print data currently held at the data-hold means 14, and will transmit them to the job transfer means 18. The print data name whose printout has interrupted this print data for a transfer according to the failure, As the alternative printer name (address) used as the destination, the workstation name (address) of the transmitting origin of print data, the maintenance place name of the counterpart of print data, and a print command (printcommand) The size (paperSize) of a form, the first page to be printed (beginningPage), In the example which contains a print to page (endingPage) and document data (documentdata), for example, was described above, the print data for a transfer serve as a configuration as shown in Table 13.
[0053]
[Table 13]
転送用プリントデータ
データ名:プリントデータ1
転送先:プリンタD
送信元:WS
プリントデータ保持先:PS
printcommond:
paperSize:B4
beginningPage:4
endingPage:25
ducument data:doc1

[0054] If the job transfer means 18 serves as an interface of each printer A-E, and selection printer data are sent from the job recovery control means 19 and the printer data for a transfer are sent from the transfer data origination means 17, the print data for a transfer will be transmitted to the printer chosen as an alternative printer. For example, in the case of the above-mentioned example, the print data for a transfer shown in the alternative printer D in Table 13 are transmitted.
[0055] According to the printer management equipment 13 of the above-mentioned configuration, when [which it shifted and the failure generated during printing processing in that printer A-E] connecting with a network 2, other usable printers can be extracted for the candidate of an alternative printer as follows, an alternative printer can be chosen from these candidates based on the directions from a workstation 1, and printing processing can be continued.
[0056] If print data are sent to target printer and data-hold means 14 from a workstation 1 and printing

processing is started as shown in drawing 8 , it always judges whether the failure occurred by this printer with the failure detection means 15 (step S21), and when the failure has not occurred, printing processing will be carried out to the page of the last of the print data demanded (step S22), and processing will be ended. On the other hand, when it is detected that the failure occurred to the printer on the way, it judges whether the failure detection means 15 performs subsequent job recovery by creating failure data, transmitting to the job recovery control means 19 (step S23), and the job recovery control means's 19 notifying the situation of a failure to a workstation 1, and receiving the reply to this (step S24).

[0057] When performing job recovery, the candidate from whom the job recovery control means 19 can serve as an alternative of Printer A at the printer extract means 16 is made to extract out of other printer B-E, although processing is stopped as it is when directions by the reply from a workstation 1 do not perform job recovery (step S25). As this extract processing is shown in drawing 9 , when an usable printer judges [other] first whether it exists (step S31) and an usable printer exists, form ZAIZU (step S32) of the printer at the time of failure generating, a quality of printed character (step S33), and the printer whose installation location (step S34) corresponds are looked for, and all printers in agreement are extracted from that inside as a candidate of an alternative printer. In addition, when the target printer does not exist, processing is ended, without extracting the candidate of (steps S31 and S35) and an alternative printer.

[0058] After performing extract processing of an alternative printer as mentioned above, check whether the candidate of an alternative printer has been extracted (step S26), and when it is able to extract, the job recovery control means 19 notifies the candidate to a workstation 1. The reply of which printer to choose from candidates is received (step S27), and to the alternative printer by which selection directions were carried out, the transfer data origination means 17 creates the print data for a transfer (step S28), and it transmits through the job transfer means 18 (step S29). And the alternative printer by which this print data for a transfer was transmitted continues printing from the page on which printing processing is not yet made according to print data. By this, the document perfect as a whole which the job recovery (good after treatment) over a failure is made on the conditions in alignment with an operator's hope, and does not have lack or duplication of the printed page can be printed, and an operator can perform recovery of a printer failure and printed recovery of a document easily.

[0059] In addition, although each above-mentioned example showed the configuration which makes the counterpart of the whole print data hold for the data-hold means 4 and 14, as long as it is a storage means by which the data-hold means 4 and 14 or the transfer data origination means 7 and 17 can access the counterpart of this whole print data if the counterpart of the management data part of print data is made to hold for the data-hold means 4 and 14, you may exist anywhere on a network. For example, the counterpart of the whole print data is made to hold for the storage means of client equipment 1, and the management data which contains the storing location data (in this case, address of client equipment) of the counterpart of ID (a data name 1, for example, print data) of print data and the whole print data in the data-hold means 4 and 14 is made held. When it considers as such a configuration, while giving the accessing function to the data-hold means 4 and 14, it will require that the counterpart of the print data with which the data-hold means 4 and 14 are identified by said ID to said storing location should be transmitted, and client equipment 1 will transmit the counterpart of the whole print data to the data-hold means 4 and 14 in response to this demand. moreover, while giving the accessing function to the transfer data origination means 7 and 17 The management data with which the transfer data origination means 7 and 17 are held at the data-hold means 4 is referred to. It requires that the counterpart of the print data identified by said ID to said storing location should be transmitted, and in response to this demand, client equipment 1 will transmit the counterpart of the whole print data to the data-hold means 4 and 14, or will transmit to the transfer data origination means 7 and 17 directly. In addition, as long as there is a storage means by which the data-hold means 4 and 14 or the transfer data origination means 7 and 17 can access a printer, you may make it make the counterpart of the whole print data hold for this storage means like the above.

[0060] Moreover, what is necessary is just to set up suitably the range made to print by the alternative

printer, when it is more convenient to print all pages from the case where it is more convenient to have made it overlap to some extent and to print on handling, or the start although only the unsettled part of the print data which are not printed as failure **** is printed by the alternative printer, duplication of a document is lost and the futility of a form etc. was lost in each above-mentioned example. Moreover, in each above-mentioned example, although explained taking the case of the page printer, this invention is applicable also to the printer of other formats.

[0061]

[Effect] As explained to the detail above, with the printer management equipment concerning claim 1 When a failure occurs to the printer under printing processing, while transmitting to the alternative printer which had the unsettled part of the print data held at the data-hold means chosen at least and making it process Since it notified to client equipment that transfer processing was made, while being able to continue printing of a document perfect as a whole An operator can be made to be able to find out the target printer easily and quickly, and a required activity can be made to do easily and quickly on the occasion of the activity which recovers the printer which the activity which collects the printed documents, and the failure produced. Moreover, with the printer management equipment concerning claim 2, since the alternative printer used out of the candidate of an alternative printer based on the directions from client equipment was chosen, in addition to the effectiveness by the printer management equipment of above-mentioned claim 1, the continuation of printing in alignment with an operator's hope is realizable.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the configuration of the printer management equipment concerning one example of invention concerning claim 1.
[Drawing 2] It is the conceptual diagram showing the data-hold structure by the data-hold means.
[Drawing 3] It is the conceptual diagram showing the DS held with a data-hold means.
[Drawing 4] It is the conceptual diagram showing the attribute data of the printer stored in memory.
[Drawing 5] It is the flow chart which shows the procedure which chooses an alternative printer.
[Drawing 6] It is the flow chart which shows the procedure which creates the print data for a transfer.
[Drawing 7] It is the block diagram showing the configuration of the printer management equipment concerning one example of invention concerning claim 2.
[Drawing 8] It is the flow chart which shows the procedure of job recovery.
[Drawing 9] It is the flow chart which shows the procedure of extracting the candidate of an alternative printer.
[Description of Notations]
1 Workstation (Client Equipment)
2 Network
3 13 Printer management equipment
4 14 Data-hold means
6 Printer Selection Means
7 17 Transfer data origination means
8 18 Job transfer means
16 Printer Extract Means
19 Job Recovery Control Means
A, B, C, D, E Printer

[Translation done.]

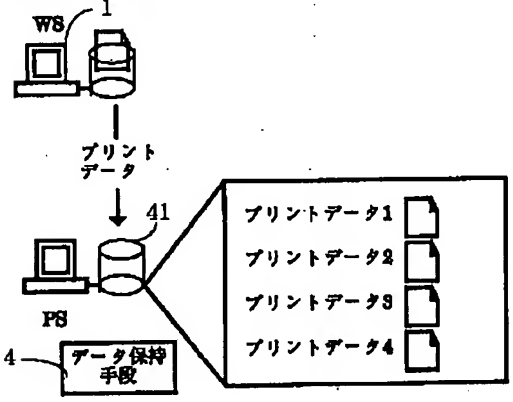
* NOTICES *

JPO and INPIT are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

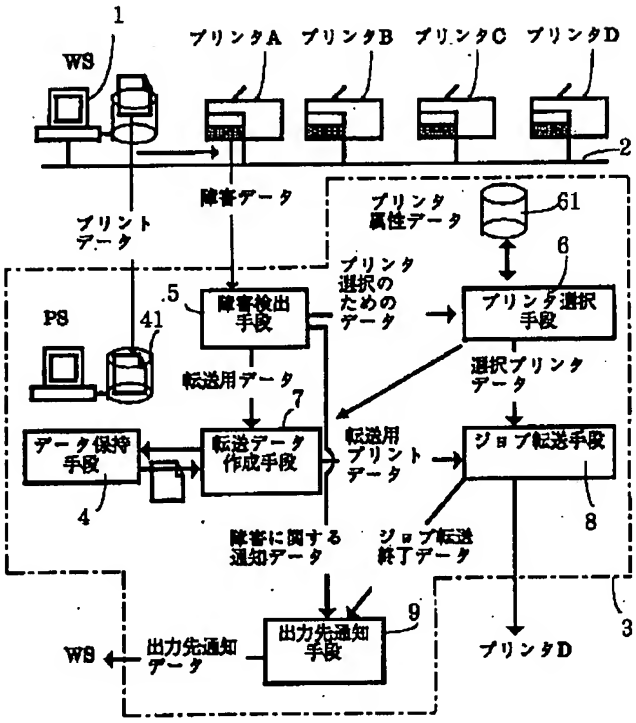
[Drawing 2]



[Drawing 3]

プリント データ名	アドレス	プリント コマンド	文書データ
プリント データ1	宛先:プリンタA 送信元:WS	paperSize:B4 beginningPage:1 endingPage:25	doc1
プリント データ2	宛先:プリンタA 送信元:WS	paperSize:A4 beginningPage:1 endingPage:8	doc2
プリント データ3	宛先:プリンタA 送信元:WS	paperSize:A4 beginningPage:25 endingPage:30	doc3
プリント データ4	宛先:プリンタA 送信元:WS	paperSize:A4 beginningPage:1 endingPage:32	doc4

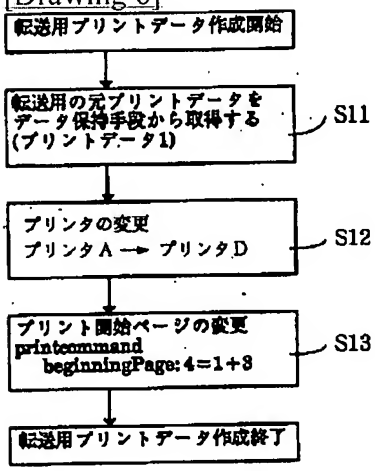
[Drawing 1]



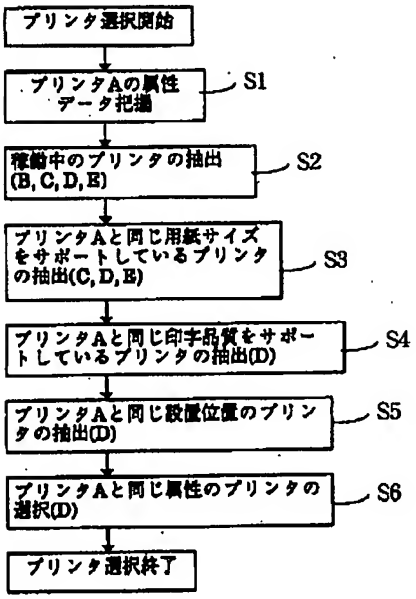
[Drawing 4]

プリンタ	用紙サイズ				印字品質	設置位置	稼働状態
	A4	A3	B4	B5			
プリンタA	○	○	○	○	600dpi	6B5	使用不可
プリンタB	○				400dpi	6B5	使用可能
プリンタC	○		○		400dpi	6B5	使用可能
プリンタD	○	○	○	○	600dpi	6B5	使用可能
プリンタE	○		○		400dpi	8B5	使用可能

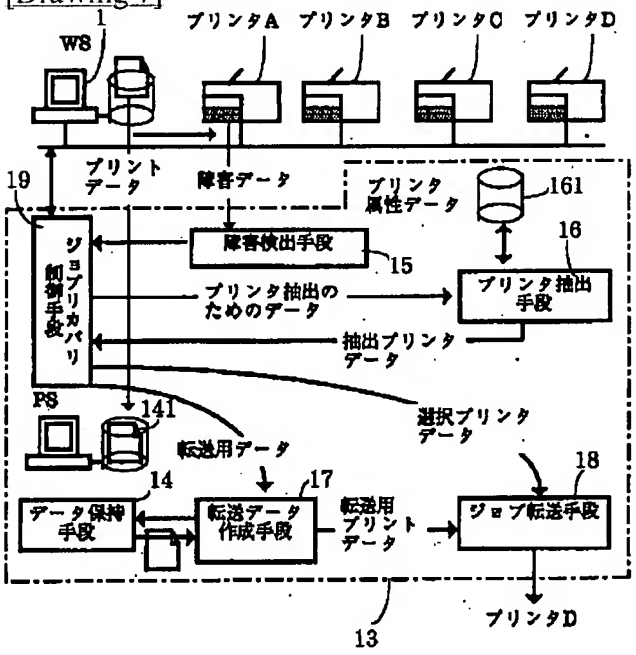
[Drawing 6]



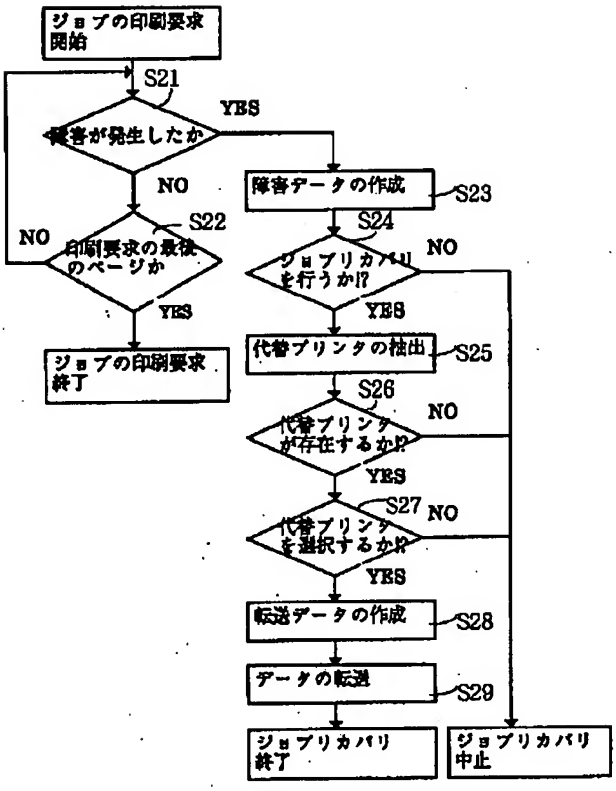
[Drawing 5]



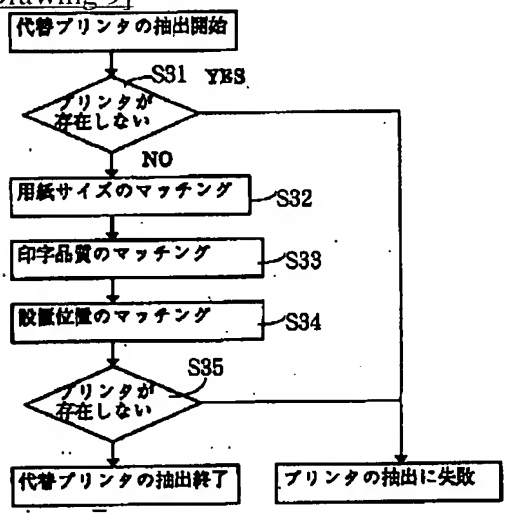
[Drawing 7]



[Drawing 8]



[Drawing 9]



[Translation done.]